



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/707,435	11/06/2000	Debra D. Wawro	UTSL:058US/MTG	9722

7590 05/16/2006

Mark T. Garrett
Fulbright & Jaworski L.L.P.
Suite 2400
600 Congress Avenue
Austin, TX 78701

EXAMINER

KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
----------	--------------

2882

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/707,435

Applicant(s)

WAWRO ET AL.

Examiner

Chih-Cheng Glen Kao

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14-35, 38-51 and 61-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-35, 38-51 and 61-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claim 21 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The human eye is neither a machine nor manufacture in a patentable sense. Therefore, the claim is rejected for being directed to non-statutory subject matter.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 35 and 63-66 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 35, the phrase "may be" in line 2 renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). Claims 63-66 are rejected by virtue of their dependency.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Cox et al. (US 6055262).

Cox et al. discloses a device, system, and method comprising at least one waveguide having an end, the end having an endface (fig. 2, #70), and a guided-mode resonance waveguide grating (fig. 2, #52, and col. 6, lines 19-39) fabricated on the endface of the at least one waveguide (fig. 2, #70), the guided-mode resonance waveguide grating having at least one waveguide layer (fig. 2, #66) and at least one grating layer (fig. 2, #58).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2882

4. Claims 4, 6, 8-12, 14, 15, 24, 26, 28-35, 46, 62-64, and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al. as applied to claims 1 and 38 above, and further in view of Magnusson et al. (US 5598300).

5. Regarding claims 15 and 35, Cox et al. discloses a system and method as recited above.

However, Cox et al. fails to disclose a waveguide grating also having a plurality of parameters including at least one permittivity of at least one grating layer, permittivity of at least one waveguide layer, periodic structure of the at least one grating layer, grating fill factor of the at least one grating layer, thickness of the at least one waveguide layer, and the thickness of the at least one grating layer, the periodic structure of the at least one grating layer having a period less than at least one wavelength of the signal.

Magnusson et al. teaches a waveguide grating also necessarily having a plurality of parameters including at least one permittivity of at least one grating layer, permittivity of at least one waveguide layer, periodic structure of the at least one grating layer, grating fill factor of the at least one grating layer, thickness of the at least one waveguide layer, and the thickness of the at least one grating layer (col. 7, lines 23-27, and fig. 3a), the periodic structure of the at least one grating layer having a period less than at least one wavelength of the signal (col. 4, lines 60-67).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system and method of Cox et al. with the grating of Magnusson et al., since one would be motivated to make such a modification for reduced sidebands and higher efficiency (col. 2, lines 17-26) as shown by Magnusson et al.

Art Unit: 2882

6. Regarding claims 4, 6, 24, 26, and 46, Magnusson et al. further teaches wherein at least one grating layer and at least one waveguide layer comprise a dielectric material (col. 2, lines 24-26, and col. 12, lines 48-50).

7. Regarding claims 8, 28, and 63, Magnusson et al. further discloses wherein the at least one grating layer and the at least one waveguide layer comprise the same layer (fig. 1, d_n).

8. Regarding claims 9, 29, and 64, Magnusson et al. further discloses wherein the at least one grating layer and the least one waveguide layer comprise different layers in contact with each other (fig. 1, d_{n-1} and d_n).

9. Regarding claims 10-12 and 30, Magnusson et al. further discloses at least a third layer comprising a dielectric material (col. 2, lines 24-26, and col. 12, lines 48-50) or metal (col. 12, lines 48-50) in contact with the at least one waveguide layer (fig. 1, d_{n-2}).

10. Regarding claims 14 and 31, Magnusson et al. further discloses a third layer (fig. 1, d_{n+1}) in contact with the at least one grating layer (fig. 1, d_n).

11. Regarding claims 32-34, a recitation with respect to the manner in which a claimed apparatus is intended to be employed fails to differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations.

Art Unit: 2882

12. Regarding claims 62 and 66, Magnusson et al. further discloses the grating and waveguide layers having different permittivities (fig. 1).

13. Claims 2 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al. and Magnusson et al. as applied to claims 1 and 15 above, and further in view of Peters (US 5812571).

Cox et al. as modified above discloses/suggests a device and system as recited above.

However, Cox et al. fails to disclose a fiber.

Peters teaches a fiber (fig. 6, #84).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the device and system of Cox et al. as modified above with the fiber of Peters, since one would be motivated to make such a modification for telecommunicating over longer distances (col. 1, lines 11-20) and reducing optical power loss (col. 1, lines 55-65) as implied from Peters.

14. Claims 3 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al. and Magnusson et al. as applied to claims 1 and 15 above, and further in view of Jewell et al. (US 5331654).

Cox et al. as modified above discloses/suggests a device and system as recited above.

However, Cox et al. fails to disclose a rectangular shape.

Jewell et al. teaches a rectangular shape (col. 1, lines 39-45).

Art Unit: 2882

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the device and system of Cox et al. as modified above with the rectangular shape of Jewell et al., since Jewell et al. shows that circular and rectangular shapes were art-recognized equivalents known in the art at the time the invention was made, which one of ordinary skill in the art would have found obvious to interchange. One would be motivated to make such a modification for more coverage of an area.

15. Claims 5, 7, 25, 27, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al. and Magnusson et al. as applied to claims 1, 15, and 38 above, and further in view of Tibuleac (“Characteristics of Reflection and Transmission Waveguide-Grating Filters”).

Cox et al. as modified above discloses/suggests a device, system, and method as recited above.

However, Cox et al. fails to disclose wherein at least one grating layer and at least one waveguide layer comprise a polymer.

Tibuleac teaches wherein at least one grating layer and at least one waveguide layer comprise a polymer (page 94, lines 1-3).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the device, system, and method of Cox et al. as modified above with the polymer of Tibuleac, since it would be within the general skill of a worker in the art to select a known material on the basis of its suitability. One would be motivated to make such a modification to more easily shape the layer and create a stronger material.

Art Unit: 2882

16. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al. and Magnusson et al. as applied to claim 15 above, and further in view of Morgan (US 5978401).

Cox et al. as modified above suggests a system as recited above. Cox et al. further discloses wherein after a signal is propagated, it contacts the guided-mode resonance waveguide grating and is reflected from the grating in whole or in part, depending at least partially upon a plurality of variable parameters (fig. 2, #52).

However, Cox et al. fails to disclose a laser source, which is a continuous wave source, coupled to a proximal end for propagating a signal therethrough, and a photodetector operationally coupled.

Morgan teaches a laser source (fig. 1, #16), which is necessarily a continuous wave source (fig. 2, #104), coupled to a proximal end (fig. 1, PDs) for propagating a signal therethrough, and a photodetector operationally coupled (col. 6, line 2).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Cox et al. as modified above with the laser source and detector of Morgan, since one would be motivated to make such a modification for higher speed communication paths (col. 1, lines 33-34) as implied from Morgan.

17. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al., Magnusson et al., and Morgan as applied to claim 19 above, and further in view of Lear (US 5633527).

Cox et al. as modified above suggests a system as recited above.

However, Cox et al. fails to disclose wherein a photodetector comprises silicon.

Art Unit: 2882

Lear wherein teaches a photodetector comprises silicon (col. 6, lines 18-20).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Cox et al. as modified above with the silicon of Lear, since one would be motivated to make such a modification for better light transmission (col. 6, lines 18-25) as implied from Lear or ease of manufacturing.

18. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al., Magnusson et al., and Morgan as applied to claim 19 above, and further in view of Jewell et al. (US 5325386).

Cox et al. as modified above suggests a system as recited above.

However, Cox et al. fails to disclose wherein a photodetector comprises the human eye.

Jewell et al. teaches wherein a photodetector comprises the human eye (fig. 2, observer).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Cox et al. as modified above with the eye of Jewell et al., since one would be motivated to make such a modification to process more information (col. 1, lines 21-27) as implied from Jewell et al.

19. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al. as applied to claim 38 above, and further in view of Peters and Farah (US 5891747).

Cox et al. in view of Peters suggests a method as recited above.

However, Cox et al. fails to disclose cleaving.

Farah teaches cleaving (col. 5, lines 15-17).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Cox et al. as modified above with the cleaving of Farah, since one would be motivated to make such a modification for more clean cuts (col. 5, lines 15-17) as implied from Farah.

20. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al. and Tibuleac as applied to claim 40 above, and further in view of Peters and Grabbe (US 5863449).

Cox et al. in view of Tibuleac and Peters suggests a method as recited above.

However, Cox et al. fails to disclose dipping.

Grabbe teaches dipping (col. 3, lines 30-40).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Cox et al. as modified above with the dipping of Grabbe, since one would be motivated to make such a modification for better protection (col. 3, lines 30-40) as implied from Grabbe.

21. Claims 42-44 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al., Tibuleac, Peters, Grabbe, and Magnusson et al. as applied to claims 41 and 46 above, and further in view of Hobbs (WO 97/47997).

Cox et al. as modified above suggests a method as recited above.

However, Cox et al. fails to disclose holographic interferometry or photolithography patterning with etching.

Art Unit: 2882

Hobbs further teaches holographic interferometry (Page 1, "Field of Invention") or photolithography patterning (Page 2, top paragraph) necessarily with etching.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Cox et al. as modified above with the patterning techniques of Hobbs, since one would be motivated to make such a modification to produce periodic structures more accurately (Page 1, "Field of Invention") as implied from Hobbs on a smaller scale with these well known techniques.

22. Claims 45, 47, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al., Magnusson et al., and Tibuleac as applied to claims 40, 46, and 38 above, and further in view of Levenson et al. (US 5291574).

Cox et al. as modified above suggests a method as recited above.

However, Cox et al. fails to disclose spin coating, sputtering, or etching.

Levenson et al. teaches spin coating, sputtering, or etching (col. 2, lines 25-27 and 33-36).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Cox et al. as modified above with the spin coating, sputtering, or etching of Levenson et al., since one would be motivated to make such a modification for more easily manufacturing at smaller dimensions (col. 2, lines 25-27 and 33-36) as implied from Levenson et al. with these well known techniques.

Art Unit: 2882

23. Claims 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al. as applied to claim 38 above, and further in view of Dimos et al. (US 6096127).

Cox et al. as modified above suggests a method as recited above.

However, Cox et al. fails to disclose thermal evaporation, electron-beam evaporation, or liquid phase epitaxy.

Dimos et al. teaches thermal evaporation, electron-beam evaporation, or liquid phase epitaxy (col. 1, lines 30-40).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Cox et al. with the various depositing methods of Dimos al., since these methods are well known in the art and since one would be motivated to make such modifications to deposit layers more evenly (col. 1, lines 30-50) as implied from Dimos et al.

24. Claims 61 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al. and Magnusson et al. as applied to claims 15 and 35 above, and further in view of Magnusson et al. ("Guided-mode resonance Brewster filter").

Cox et al. as modified above discloses a device and system as recited above.

However, Cox et al. fails to disclose the permittivities of the at least one waveguide and the at least one grating layer being the same.

Magnusson et al. (Letters) teaches the permittivities of the at least one waveguide and the at least one grating layer being the same (fig. 1, $n_s = n_{IL}$).

Art Unit: 2882

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the device and system of Cox et al. as modified above with the same permittivities of Magnusson et al. (Letters), since one would be motivated to make such a modification for creating higher efficiency filters (abstract) as implied from Magnusson et al. (Letters).

Response to Arguments

25. Applicant's arguments, see sections I, III, and IV, on pages 1 and 2, filed 4/10/06, with respect to the rejection(s) of at least claim(s) 1, 15, 35, and 38 respectively under 35 USC 102 and 103 have been fully considered and are persuasive. Therefore, those rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of at least Cox et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2882

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gk



EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER